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| 09/700,367 | 11/15/2000 | Rainer Karer | 0775/000003 | 6131 |

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WASHINGTON, DC 20036

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| EXAMINER |
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DOROSHENK, ALEXA A

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| ART UNIT | PAPER NUMBER |
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1764

DATE MAILED: 01/26/2005

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary

Application No.

09/700,367

Applicant(s)

KARER ET AL.

Examiner

Alexa A. Doroshenk

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 25 October 2004.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-15 is/are pending in the application.
- 4a) Of the above claim(s) 11-15 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-10 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 15 November 2000 is/are: a) ☐ accepted or b) ☒ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All b) ☐ Some * c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. _____.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- * See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449 or PTO/SB/08)
Paper No(s)/Mail Date 11/15/00.
- 4) ☐ Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____.
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: _____.

DETAILED ACTION

Election/Restrictions

1. Applicant's election with traverse of claims 1-10 in the reply filed on October 25, 2004 is acknowledged. The traversal is on the ground(s) that the groups have the same special technical feature, the apparatus defined in claim 1. This is not found persuasive because the special technical feature (the apparatus of claim 1) is known in the art (see the rejections of claim 1 below) and therefor the inventions lack unity since the apparatus was not applicant's contribution over the prior art.

The requirement is still deemed proper and is therefore made FINAL.

Drawings

2. The drawings are objected to under 37 CFR 1.83(a). The drawings must show every feature of the invention specified in the claims. Therefore, a gas distributor plate having orifices more than 20% total surface area (claim 1), a region of transition of reaction gas from the circulation line into the reactor (claims 1-5), a gas distributor plate having orifices more than 90% total surface area (claim 3), flow reshapers (claim 4), wide-mesh grid on which balls are fixed (claim 5), a closable flap (claim 7), a closable flap with holes (claim 8), and a cyclone (claim 10) must be shown or the feature(s) canceled from the claim(s). No new matter should be entered.

Corrected drawing sheets in compliance with 37 CFR 1.121(d) are required in reply to the Office action to avoid abandonment of the application. Any amended replacement drawing sheet should include all of the figures appearing on the immediate prior version of the sheet, even if only one figure is being amended. The figure or figure

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number of an amended drawing should not be labeled as "amended." If a drawing figure is to be canceled, the appropriate figure must be removed from the replacement sheet, and where necessary, the remaining figures must be renumbered and appropriate changes made to the brief description of the several views of the drawings for consistency. Additional replacement sheets may be necessary to show the renumbering of the remaining figures. The replacement sheet(s) should be labeled "Replacement Sheet" in the page header (as per 37 CFR 1.84(c)) so as not to obstruct any portion of the drawing figures. If the changes are not accepted by the examiner, the applicant will be notified and informed of any required corrective action in the next Office action. The objection to the drawings will not be held in abeyance.

Claim Rejections - 35 USC § 112

3. The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

4. Claim 4 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. The disclosure fails to give any description of how reshapers are "arranged so as to bring about substantially homogeneous introduction of the gas flow into the fluidized bed".

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5. Claim 5 is rejected under 35 U.S.C. 112, first paragraph, as failing to comply with the written description requirement. The claim(s) contains subject matter which was not described in the specification in such a way as to reasonably convey to one skilled in the relevant art that the inventor(s), at the time the application was filed, had possession of the claimed invention. What are the balls on the grid? What are they made of? How are they fixed? What numbers, sizes and distribution of said balls would encompass a homogeneous gas flow?

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 1-10 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

8. Claim 1 recites the limitation "the region of transition of the reaction gas from the circulation gas line into the reactor chamber" in lines 5-6 of claim 1. There is insufficient antecedent basis for this limitation in the claim. Where is this region? Is this region where the line connects with the reactor? Is this region in the lower section or the upper section of the reactor? For examination purposes, "the region" is any location within the reactor chamber.

9. The term "fixed in such number, size and distribution" in claim 5 is a relative term which renders the claim indefinite. The term "fixed in such number, size and distribution" is not defined by the claim, the specification does not provide a standard for ascertaining the requisite degree, and one of ordinary skill in the art would not be

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reasonably apprised of the scope of the invention. For this reason, along with the rejection of claim 5 under 35 USC 112, first paragraph above, the scope of this claim cannot be determined and a rejection its merits cannot be made.

10. The term "follows" is unclear in claim 9 as no flow direction has been established to determine this location. For examination purposes the examiner has treated the calming zone to be in the upper portion of the reactor chamber as illustrated in the figure.

11. Claim 10 recites the limitation "the units" in line 2 of claim 10. There is insufficient antecedent basis for this limitation in the claim. The examiner has interpreted, for examination purposes, for "the units" to be referring to the compressor and the cooling device.

12. Claim 1 is rejected under 35 U.S.C. 112, second paragraph, as being incomplete for omitting essential structural cooperative relationships of elements, such omission amounting to a gap between the necessary structural connections. See MPEP § 2172.01. The omitted structural cooperative relationships are a connection between the reactor chamber and the circulation gas line. For examination purposes, the claims have been treated as the reactor having a connection with the line such as illustrated in the figure.

Claim Objections

13. Claim 4 is objected to because of the following informalities: a space is missing in line 1 of the claim, "claim1". Appropriate correction is required.

Claim Rejections - 35 USC § 102

14. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

15. Claims 1, 2, 4, 9 and 10 are rejected under 35 U.S.C. 102(e) as being anticipated by Govoni et al. (6,413,477).

With respect to claims 1 and 2, Govoni et al. discloses an apparatus comprising:

a reactor chamber (20) in the form of a vertical cylinder (col. 10, lines 47-48);

a recycle (circulation) line (36) with a compressor (26) and cooling device (27) within the line (36);

wherein there is no gas distributor plate within the reactor (see figure 3 and col. 10, line 60- col. 11, lines 6); and

wherein there is no internal heat exchanger within the reactor (see figures 2 and 3 and col. 12, lines 20-21).

With respect to claim 4, in the embodiment of claim 2 of Govoni et al., the grid (33) is in the region of the connection of the line (36) and the reactor (20) and would inherently bring about a substantially homogeneous introduction of the gas flow into the bed.

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With respect to claim 9, Govoni et al. discloses wherein the reactor chamber (20) can have larger diameter at its upper end (col. 11, lines 25-28).

With respect to claim 10, Govoni et al. discloses wherein there is a cyclone solid/gas separator (22, col. 6, lines 27-32 and col. 10, line 52) between the reactor (20) and the compressor (26) and cooling device (27) of the line (36).

(e) the invention was described in (1) an application for patent, published under section 122(b), by another filed in the United States before the invention by the applicant for patent or (2) a patent granted on an application for patent by another filed in the United States before the invention by the applicant for patent, except that an international application filed under the treaty defined in section 351(a) shall have the effects for purposes of this subsection of an application filed in the United States only if the international application designated the United States and was published under Article 21(2) of such treaty in the English language.

16. Claims 1-3, 6 and 9 are rejected under 35 U.S.C. 102(e) as being anticipated by Jorgensen et al. (6,113,862).

With respect to claim 1, Jorgensen et al. disclose an apparatus comprising:
a reactor (1) in the form of a vertical tube (see figures 1 and 2);
a recycle (circulation) line (5) with a compressor (6) and a heat exchanger (7);
a grid (gas distributor plate) (3) in the lower section of the reactor (1) wherein more than 20% of the surface area is open space (col. 10, lines 1-3); and
wherein there is no internal heat exchanger in the reactor (see figure 1).

With respect to claim 2, there is no distributor plate in the immediate area where the recycle line (5) connects to the reactor (1).

With respect to claim 3, there is a grid (gas distributor plate) (3) in the lower section of the reactor (1) wherein more than 75% of the surface area is open space (col. 10, lines 1-3). "More than 75%" encompasses "more than 90%".

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With respect to claim 6, Jorgensen et al. disclose wherein the reactor diameter can be between 2.4 and 5 m (col. 5, lines 18-19).

With respect to claim 9, a velocity reduction section (4) is located in the upper section of the reaction vessel (1).

Claim Rejections - 35 USC § 103

17. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

18. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Govoni et al. (6,413,477) in view of Lachance et al. (4,720,235).

With respect to claim 7 and 8, Govoni et al. fails to disclose a closable flap with holes.

Lachance et al. teaches wherein a jet flap with a pattern of holes (col. 2, lines 17-24) is provided in combination with a compressor in order to improve performance and compressor stability (col. 2, lines 8-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such a flap in the apparatus of Govoni et al. in order to gain the compressor stability and performance taught by Lachance et al.

With further respect to claim 8, Lachance et al. further discloses wherein the holes have a diameter between 1 and 7 mm (see examples 1 and 2).

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19. Claims 7 and 8 are rejected under 35 U.S.C. 103(a) as being unpatentable over Jorgensen et al. (6,113,862) in view of Lachance et al. (4,720,235).

With respect to claim 7 and 8, Jorgensen et al. fails to disclose a closable flap with holes.

Lachance et al. teaches wherein a jet flap with a pattern of holes (col. 2, lines 17-24) is provided in combination with a compressor in order to improve performance and compressor stability (col. 2, lines 8-16). It would have been obvious to one of ordinary skill in the art at the time the invention was made to provide such a flap in the apparatus of Jorgensen et al. in order to gain the compressor stability and performance taught by Lachance et al.

With further respect to claim 8, Lachance et al. further discloses wherein the holes have a diameter between 1 and 7 mm (see examples 1 and 2).

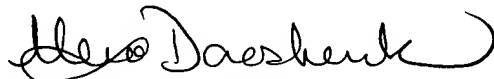
Conclusion

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Alexa A. Doroshenk whose telephone number is 571-272-1446. The examiner can normally be reached on Monday - Thursday from 9:00 AM - 7:30 PM.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Glenn Caldarola can be reached on 571-272-1444. The fax phone number for the organization where this application or proceeding is assigned is 703-872-9306.

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Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free).



Alexa A. Doroshenk
Examiner
Art Unit 1764